

What is claimed is:

1. A method for operating a two-stroke engine including a two-stroke engine for a portable handheld work apparatus, the two-stroke engine including: a crankcase; a cylinder connected to said crankcase; said cylinder having a cylinder wall
5 defining a cylinder; a piston displaceably mounted in said cylinder for reciprocating movement therein and said piston and said cylinder conjointly defining a combustion chamber; a crankshaft rotatably mounted in said crankcase; a connecting rod connecting said piston to said crankshaft so as to permit
10 said piston to drive said crankshaft as said piston reciprocates in said cylinder; said crankcase having an inlet through which an air/fuel mixture is drawn into said crankcase during an intake phase of said engine; a transfer channel for conducting said air/fuel mixture from said crankcase into said
15 combustion chamber; and, a fluid channel communicating with said transfer channel; the method comprising the steps of:

drawing a fluid into said transfer channel through said fluid channel during said intake phase and storing the inducted fluid in said transfer channel with said fluid being a
20 fuel-poor to fuel-free fluid; and,

adjusting λ of said air/fuel mixture stored in said crankcase in a range of approximately 0.2 to 0.6.

2. The method of claim 1, wherein said λ is adjusted in a range of 0.3 to 0.5.

3. The method of claim 1, wherein said λ is greater than 0.6 at idle and drops to a value of approximately 0.3 with

increasing load.

4. The method of claim 1, wherein said lambda (λ) drops approximately continuously as a function of load.

5. The method of claim 1, characterized in that said lambda (λ) remains approximately constant in a part-load range following idle.

6. The method of claim 1, wherein the inducted fluid volume is essentially completely stored in the volume of the transfer channel.

7. The method of claim 1, wherein said engine has a plurality of said transfer channels and each of said transfer channels has a volume lying between an entry window of said transfer channel to said combustion chamber and a transfer window to said crankcase; and, said total volume of said transfer channels is designed to be greater than the volume of said fluid inducted at full load.

8. The method of claim 7, wherein said total volume of said transfer channels amounts to approximately 15% to 35% of the piston displacement of said engine.

9. The method of claim 1, wherein said lambda (λ) of the mixture, which participates in the combustion, is adjusted to approximately 0.70 to 0.95 over the entire load range.

10. The method of claim 1, wherein said engine is a

piston-port controlled scavenging advance store engine.

11. The method of claim 1, wherein said engine is a membrane-controlled scavenging advance store engine.

12. The method of claim 1, wherein the engine has a membrane-controlled or rotating-disc controlled mixture inlet and a piston-port controlled fluid inlet.